

WHAT IS CLAIMED IS:

1. A method for establishing point-to-point Internet communication comprising the steps of:

5 (a) storing in a database a respective Internet Protocol (IP) address of a set of processing units that have an on-line status with respect to the Internet;

(b) transmitting a query from a first processing unit to a connection server to determine the on-line status of a second processing unit; and

10 (c) retrieving the IP address of the second unit from the database using the connection server, in response to the determination of a positive on-line status of the second processing unit, for establishing a point-to-point communication link between the first and second
15 processing units through the Internet.

2. The method of claim 1 wherein the step (b) of transmitting the query includes the step of:

20 (b1) transmitting the query to the connection server operatively connected to the database and the Internet; and

wherein the step (c) of retrieving the IP address includes the steps of:

25 (c1) searching the database using the connection server;

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(c2) determining the on-line status of the second processing unit;

(c3) retrieving the IP address of the second processing unit in response to the positive on-line status
5 of the second processing unit; and

(c4) transmitting the IP address of the second processing unit to the first processing unit for establishing the point-to-point communication link between the first and second processing units through the Internet.
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3. The method of claim 2 further comprising, after step (c2), the steps of:

(c5) generating an off-line message in response to a negative on-line status of the second
15 processing unit; and

(c4) transmitting the off-line message to the first processing unit.

4. The method of claim 1 further comprising the
20 step of:

(d) performing a secondary communication protocol in response to a non-responsive condition of the connection server.

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5. The method of claim 4 wherein the step (d) of performing the secondary communication protocol includes the steps of:

(d1) transmitting an E-mail signal, including
5 a first IP address, from the first processing unit;

(d2) processing the E-mail signal through the Internet to deliver the E-mail signal to the second processing unit; and

(d3) transmitting a second IP address to the
10 first processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

6. An apparatus comprising:

15 a first processing unit including:

a program stored in a memory for performing a point-to-point Internet protocol; and

a processor for executing the point-to-point Internet protocol program to generate a query to
20 receive an Internet Protocol (IP) address of a second processing unit, for transmitting the query through the Internet to a connection server for determining an on-line status of a second processing unit to the connection server, and for establishing a point-to-point communication link to
25 the second processing unit using the IP address.

7. A system for point-to-point communications over the Internet comprising:

a database for storing a set of Internet Protocol (IP) addresses of at least one processing unit that has on-line status with respect to the Internet;

a first processing unit including:

a first program for performing a first point-to-point Internet protocol; and

a first processor for executing the first program and for transmitting a query; a connection server, responsive to the query, for determining the on-line status of a second processing unit by searching the database, and for transmitting an on-line message to the first processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

8. The system of claim 7 wherein the connection server, responsive to a positive determination of the on-line status of the second processing unit, retrieves the respective IP address of the second processing unit from the database and transmits the on-line message, including the IP address, to the first processing unit; and

wherein the first processing unit establishes the point-to-point communication link between the first and

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second processing units through the Internet in response to receiving the IP address of the second processing unit from the connection server.

5 9. The system of claim 7 wherein the connection server, responsive to a negative determination of the on-line status of the second processing unit, generates an off-line message, and transmits the off-line message to the first processing unit.

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10. The system of claim 7 wherein the connection server further includes a timer for timestamping IP addresses of the set of processing units having a positive on-line status with respect to the Internet.

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11. The system of claim 7 further comprising:

a mail server for processing a E-mail signal through the Internet to deliver the E-mail to a specified second processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet; and

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wherein the first processor of the first processing unit executes a second program to generate and transmit the E-mail signal, including a first IP address

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associated with the first processing unit, to the mail server.

12. A method for establishing point-to-point Internet communication comprising the steps of:
- (a) transmitting an E-mail signal, including a first Internet Protocol (IP) address, from a first processing unit;
 - (b) processing the E-mail signal through the Internet to deliver the E-mail signal to a second processing unit; and
 - (c) transmitting a second IP address to the first processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

13. The method of claim 12 further comprising the step of:

- (a1) generating the E-mail signal from the first IP address corresponding to the first processing unit before the step (a) of transmitting the E-mail signal.

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14. The method of claim 12 further comprising the step of:

(a1) generating the E-mail signal from a session number before the step (a) of transmitting the E-mail signal.

15. The method of claim 12 wherein the step (b) of processing the E-mail signal further comprises the step of:

(b1) processing the E-mail signal using a mail server operatively connected to the second processing unit.

16. The method of claim 12 further comprising the step of:

(b1) generating a connection signal including the second IP address at the second processing unit before the step (c) of transmitting the second IP address to the first processing unit; and

wherein the step (c) of transmitting the second IP address includes the step (c1) of transmitting the connection signal from the second processing unit to the first processing unit.

17. An apparatus comprising:

a first processing unit including:

a program stored in a memory for performing a point-to-point Internet protocol; and

5 a processor for executing the point-to-point Internet protocol program to generate an E-mail signal, including a first Internet Protocol (IP) address, and for transmitting the E-mail signal through the Internet to a second processing unit for establishing a point-to-point communication link to the first processing unit.

18. The apparatus of claim 17 wherein the processor is adapted to generate the E-mail signal from the first IP address corresponding to the first processing unit.

19. A system for point-to-point communications over the Internet comprising:

a first processing unit including:

20 a first program for performing a point-to-point Internet protocol; and

a first processor for executing the first program and for transmitting an E-mail signal, including a first Internet Protocol (IP) address; and

25 a mail server for processing the E-mail signal through the Internet to deliver the E-mail to a

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second processing unit for establishing a point-to-point communication link between the first and second processing units through the Internet.

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20. The system of claim 19 further comprising:
the second processing unit including:

a second program for performing the
point-to-point Internet protocol; and

a second processor for executing the
10 second program and for receiving the E-mail signal from the
mail server and for generating a connection signal,
including a second IP address, for establishing the point-
to-point communication link to the first processing unit.

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